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## **Flusser on Artificial Intelligence**

Artificial intelligence was not a topic Vilém Flusser addressed explicitly. And yet, many of his central concerns—programming, apparatuses, the role of the functionary, the limits of perception, and the problem of communication—anticipate key issues we now associate with AI. In his meditations on technical images, black-box epistemologies, and the restructuring of human creativity, Flusser offers a theoretical vocabulary that resonates uncannily with the conceptual challenges posed by contemporary machine learning systems.

This short article explores how his thinking may illuminate—or better, complicate—current discussions around artificial intelligence. Rather than reading Flusser as a prophet of technological futures, I propose a different approach: to engage his work as a rigorous philosophical framework for interrogating what AI is, what it does, and how it transforms our relation to knowledge, creativity, and otherness.

### **1. Simulating Thought vs. Executing a Program: Turing and Flusser on Machine Intelligence**

Alan Turing and Vilém Flusser offer two profoundly different conceptions of what it means for a machine to “think.” Their approaches diverge not only in historical context and disciplinary framing—computing theory on one side, media philosophy on the other—but also in how each understands the nature of machine operations in relation to human thought.

Turing, writing in 1950, proposed what is now famously known as the Turing Test, or “Imitation Game.” In this experiment, a machine is considered intelligent if it can imitate human conversational behavior so convincingly that an interrogator cannot distinguish it from a human being. The test does not attempt to examine the inner workings of the machine, nor does it demand that the machine “understand” in any human sense. Instead, it defines intelligence operationally, as successful simulation. The focus is on performativity: intelligence is what appears as such in interaction. In this way, Turing radically sidestepped philosophical definitions of mind or consciousness and grounded machine intelligence in observable linguistic behavior.

Flusser's model could not be more different. For him, the machine—or more precisely, the apparatus—is not to be evaluated in terms of its human-like performance, but rather in terms of how it functions as a programmed system. An apparatus, as Flusser defines it, is governed by a rigid program that generates a finite set of possibilities. These possibilities are not invented or expanded by the machine, but pre-encoded into its operational logic. The role of the human within this system is that of a functionary, who enacts or selects among these possibilities, often without full awareness of the program's boundaries.

Where Turing imagines a machine that might outwit the human interlocutor, Flusser emphasizes that the machine itself is incapable of transcendence. It does not evolve; it does not learn. It merely executes. In the case of the photographic apparatus (Flusser, 2000), which Flusser often uses as a paradigmatic example, the program is a set of technical possibilities—aperture, exposure, framing, etc.—that can be realized in numerous combinations. But these combinations are finite, and crucially, determined in advance. The apparatus does not generate new knowledge; it distributes pre-structured permutations through human engagement.

This fundamental contrast leads to a different conceptualization of machine intelligence. For Turing, machine intelligence is performative and relational: it is about how the machine appears to act in a communicative situation. For Flusser, the machine is neither intelligent nor creative—it is a closed system that structures action through programming. If Turing's machine imitates, Flusser's apparatus constrains. It is not designed to think, but to delimit what kinds of actions and outcomes are possible within a strictly coded universe. Thus, where Turing invites us to imagine the machine crossing a threshold into human-like thought, Flusser warns us of a more subtle transformation: the reduction of human agency to the repetitive execution of pre-programmed options. The tension between these two models—simulation versus execution—frames two distinct imaginaries of artificial intelligence. One celebrates indistinguishability, the other interrogates limitation.

## **2. Variational Creativity and the Limits of Artificial Invention**

Vilém Flusser's reflections on creativity, especially about technical apparatuses, offer a crucial philosophical lens through which to interpret the operations of contemporary artificial intelligence. In his essay "On Discovery III," Flusser introduces a critical distinction between "true" and "variational" creativity. The former refers to the emergence of radically new ideas or forms—events of genuine invention. The latter, in contrast, refers to new combinations of already given elements within a closed system (Flusser, 2017, 80). Apparatuses are only capable of the latter.

This description aligns remarkably well with how generative artificial intelligence systems operate today. Large language models, image generators, and other AI tools produce outputs that appear new, but derive from the probabilistic recombination of prior data. Their generativity is not inventive in the Flusserian sense, but variational: they remain bounded by the structures of their training corpora and cannot step outside of them. Flusser’s account prefigures this: the program of an apparatus is a set of rules and constraints that determine a finite (if vast) set of possible outcomes.<sup>1</sup> When a human interacts with the apparatus, they may generate outputs that appear novel, but these outputs are merely realizations of latent options embedded in the device. There is no self-expansion of the system, no growth of the conceptual space it inhabits. Apparatuses do not invent; they permute.

This framework provides a sobering counterpoint to current discourses around “creative AI.” While machine learning models may surprise users with unexpected outputs, such surprises are still confined to the internal logic of the system. There is no true conceptual rupture, no introduction of an element that could not be derived from what came before. Apparatuses can assist, simulate, or suggest—but they cannot transcend. Understanding this difference is crucial if we are to navigate a future increasingly populated by systems that generate, but do not create. Still more: “New information—creativity—comes about by mistake, or, if you prefer, by pure chance” (Flusser, 2017, 77). Thus, as long as the apparatus operates without mistakes, it cannot be truly creative. And yet, contemporary AI systems do make mistakes—sometimes producing outputs that are illogical, incoherent, or hallucinatory from a human perspective. These “hallucinations” are not part of a designed program but emerge from the probabilistic nature of large models, suggesting a kind of accidental deviation from the expected. Whether such deviations can be considered creative remains an open question. But their very occurrence points to a paradox: precisely in their failure to simulate human logic, AI systems might begin to approach something akin to invention—not by design, but by error.

### 3. The Apparatus as Black Box: Opacity, Functionaries, and the Logic of AI

One of Vilém Flusser’s most enduring contributions to media theory is his insistence that technical apparatuses must be understood as *black boxes* (Flusser, 2000, 16). In this formulation, the apparatus is not simply a tool with transparent mechanisms, but a closed system whose internal operations

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<sup>1</sup> Cf. “The possibilities contained within it have to transcend the ability of the functionary to exhaust them, i.e. the competence of the camera has to be greater than that of its functionaries” (Flusser, 2000, 27).

are hidden from the user. We know what goes in, and we see what comes out—but the logic that connects input to output remains obscured. This conceptualization, developed concerning photographic technology, anticipates with remarkable precision the structure of contemporary artificial intelligence systems, particularly those based on deep learning.

The “black box” metaphor has become a common way of describing modern AI. Models such as neural networks operate through layers of statistical processing that are not easily interpretable, even by their creators. The complexity and scale of these systems make them difficult to audit or explain. In many cases, even when a model yields accurate or useful results, it remains unclear how it arrived at them. This condition of opacity is not a byproduct of flawed design, but intrinsic to how such systems function.

Flusser recognized that this opacity alters the relationship between human users and technology. When operating a black-box apparatus, the human becomes a functionary—not a creator or decision-maker in any traditional sense, but an operator whose actions are structured by the apparatus’s internal program. The photographer is a functionary of the camera; he is playing a game whose rules are programmed into the camera and whose moves are dictated by the possibilities of the apparatus: “No photographer, not even the totality of all photographers, can entirely get to the bottom of what a correctly programmed camera is up to. It is a black box” (Flusser, 2000, 27).

This analysis becomes all the more urgent in the age of AI. Users of large language models, image generators, or decision-support systems increasingly rely on outputs whose internal genesis they do not understand. Like Flusser’s photographer, they choose among possibilities presented by the machine, believing themselves autonomous while operating within a logic they did not create and cannot interrogate. The system becomes authoritative not because it is understood, but because it works—or appears to.

Flusser’s concern was not simply technical, but political and existential. When human actors engage with black-box systems without understanding their internal logic, they surrender a form of agency. They become intermediaries in a process they cannot control. In Flusser’s terms, they lose the capacity to invent, to critique, or even to recognize the conditions of their own action. Instead of participating in the shaping of meaning, they merely perform functions within a programmed universe.

Applied to AI, this critique challenges narratives of empowerment and efficiency. While AI systems may extend our capacities, they also risk enclosing them within structures we do not grasp. The more powerful and persuasive these systems become, the more seductive their outputs, the greater the danger that we accept their authority without question. Flusser’s figure of the functionary thus returns as a prophetic warning: the user of AI, like the operator of any black-box apparatus,

risks becoming a technician of the unknown—a participant in a process whose rules remain invisible.

#### 4. Knowing from Scratch: Flusser, Projective Thinking, and the Epistemology of AI

Flusser’s reflections on epistemology consistently return to one central idea: we do not simply perceive the world as it is but always project ourselves into it. We never truly look through a window; rather, we look onto it. We “project” rather than “perceive” (cf. Tratnik, 2017). Still more: “Windows provide vistas; through them we see the outside from the inside. The Greeks called such a vision *theoria*: you need not get wet while looking” (Flusser, 2017, 141). Knowledge, for Flusser, is not passive reception but active imposition. This makes genuine discovery—an encounter with that whose experience of the world is fundamentally inaccessible to human modes of perception—extraordinarily difficult. We are trapped in a recursive loop: “One goes out through the door to conquer the world, and loses oneself there; one comes back through the door to find oneself, and loses the world” (Flusser, 2017, 141). This metaphor of passage and return encapsulates a deeper epistemological tension: the more we attempt to grasp the world, the more we risk reinforcing our own frameworks instead of encountering the other. In this sense, discovery always carries the danger of either self-loss or loss of the world—of subjectivity overwhelming perception, or of the world receding behind structures of understanding.

This epistemological structure is not only philosophical but deeply relevant to how contemporary artificial intelligence systems operate. Most machine learning models are trained on massive datasets: the internet, corpora of books, code, and images. They are programmed to predict and extrapolate from what already exists. Their learning is statistical; their outputs emerge from what has been seen before. In this sense, they reproduce the same projective logic that Flusser critiques. They do not see the world—they simulate our projections of it.

Yet some researchers are attempting to break from this loop. Linguist and AI researcher Gašper Beguš, a linguist and AI researcher from the University of Berkeley, for example, is developing systems that do not rely on existing language corpora. His models aim to learn language in a way that mimics how children acquire it: without a database, from scratch. The ambition is to allow the machine to encounter patterns in the world without preloaded ontologies. This approach resonates with Flusser’s call for a form of knowledge that resists projection—a knowledge that might, if only momentarily, *perceive* before it *projects*.

Flusser’s skepticism remains pertinent, however. Even when we aim to start from nothing, we are still shaped by the tools and frameworks we use to construct the system. The apparatus—technical, linguistic, or conceptual—structures what can be known. But precisely in confronting these limitations, in attempting to model learning without legacy, researchers like Beguš push us toward a renewed epistemological imagination.

As Flusser noted in his Artforum essay “On Discovery,” knowledge expands not linearly, but through ruptures and holes: “As knowledge increases, the relationship between the known and the unknown shifts in favor of the unknown. This space of the unknown tends to disrupt what was known before, creating gaping holes in the edifice of knowledge, holes that both rupture individual disciplines and separate them from each other” (Flusser, 2000, 64). The unknown, in this sense, is not simply what we do not yet know, but what we cannot yet frame. AI systems that aspire to learn from scratch bring us face to face with this horizon: a zone where knowledge might no longer be projection, but encounter.

## 5. Mediated Encounters: Flusser’s Vampyroteuthis and AI for Whale Communication

Flusser’s *Vampyroteuthis Infernalis* (Flusser, 2011) offers a speculative but rigorously philosophical exploration of a being whose experience of the world is radically different from our own. The deep-sea squid lives in darkness, without fixed orientation—its body and environment are fundamentally incomprehensible from a human vantage. Flusser proposes that to *understand* such a creature is to recognize it as not merely “other,” but *ontologically other*. Encountering it requires mediated observation and interpretive imagination.

This tension between worlds finds a contemporary echo in the work of Gašper Beguš, leading efforts at Project CETI to analyze sperm whale communication. Beguš’s team is not attempting to anthropomorphize whales, but to identify structural patterns—like vowel-like codas and diphthongs—that may approximate a grammar of whale communication. Their approach draws on deep generative models that can generate plausible new codas, and includes interpretability techniques (like CDEV) that help link acoustic outputs back to latent model structure (Andreas et al., 2022, Beguš et al., 2023).

Whales inhabit a world fundamentally defined by acoustics and social resonance, not by visual signs or grounded objects. Any human attempt to “hear” their language must proceed through layers of technological and algorithmic mediation. This parallels Flusser’s meditation on

the mediated nature of interspecies understanding: we cannot directly encounter the world of another creature; at best, we can build interpretive bridges that correlate their experience with ours. In both cases, the human subject remains external—but the attempt to resonate across difference becomes a philosophical act, not just a technological one.

Such encounters—whether with a luminous squid or a singing whale—are not only epistemological challenges but ontological ones: they question our categories of being, knowing, and communicating (see Tratnik, 2023). The AI approach of Beguš and colleagues is compelling not because it decodes a whale language in the human sense, but because it opens a space where otherness is not reduced to similarity but acknowledged as fundamentally different—while still allowing for communication as mediated resonance.

Thus, Flusser's Vampyrotheuthis and Beguš's whales frame communication not as the transmission of meaning understood unambiguously, but as a *performative encounter mediated through apparatuses*: cameras, hydrophones, algorithms—all transforming perception into interpretation. These mediated dialogues ask us to rethink intelligence, not as property but as emergent interrelation.

## Conclusion

Taken together, these five aspects of Flusser's thought—programmed constraint, variational logic, opacity, projection, and mediated interspecies dialogue—prefigure and critically illuminate the stakes of today's AI discourse. Rather than offering models of transcendence, Flusser's apparatuses challenge us to think through limitation, recursion, and mediation—not as deficits, but as the very conditions of thought in a technical world.

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